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METEOROLOGICAL DATA REPORT

NIKE-HYDAC STV SR-048
(28 March 1967)

BY

GORDON L. DUNAWAY

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METEOROLOGICAL DATA REPORT

NIKE-HYDAC STV SR-048
(28 March 1967)

By

Gordon L. Dunawsky

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May 1967

DA Task IV650212A127-02

ATMOSPHERIC SCIENCES LABORATORY
WHITE SANDS MISSILE RANGE, NEW MEXICO

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ABSTRACT

Meteorological data gathered for the launching of Nike-Hydac STV SR-048 are presented for the Ballistic Systems Division U. S. Air Force and for ballistic studies. The data appear, along with calculated ballistic data, in tabular form.

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INTRODUCTION

Nike-Hydac STV SR-048 was launched from Launch Complex 33/L-314, White Sands Missile Range (WSMR), New Mexico, at 0933 hours MST, 28 March 1967.

Meteorological data used in conjunction with theoretical calculations to predict rocket impact were collected by the Meteorological Support Division, Atmospheric Sciences Laboratory (ASL), WSMR, New Mexico. The Ballistics Meteorologists for this firing were Gordon L. Dunaway and SFC Glen E. Hudson.

DISCUSSION

Wind data for the first 216 feet above the surface were obtained from a system composed of 5 Aerovanes mounted on a 200-foot tower and cabled to component wind indicators.

From 216 to 4,000 feet above the surface, wind data were obtained from double-theodolite-observed balloon ascents.

Temperature, pressure, and humidity data, along with upper wind data from 4,000 to 100,000 feet above the surface, were obtained from standard rawinsonde observations.

Mean wind component values in each ballistic zone were determined from vertical cross sections by the equal-area method.

Theoretical rocket performance values and ballistic factors as a function of altitude were provided by ASL, and are the basis for data appearing in Table XII.

PAYLOAD		233.0	Pounds
CORIOLIS DISPLACEMENT	WEST	5 0	Miles
SECOND-STAGE IGNITION	TIME	20 0	Seconds
	ALTITUDE	36,691	Feet MSL
PEAK	TIME	232 0	Seconds
	ALTITUDE	693,948	Feet MSL
UNIT WIND EFFECT	HEAD	2.3815	Miles/MPH
	CROSS	2 4678	Miles/MPH
	TAIL	2.3815	Miles/MPH
TOWER TILT EFFECT		13.83	Miles/Degree

TABLE I. THEORETICAL ROCKET PERFORMANCE VALUES
NIKE-HYDAC STV SR-048

LAYERS IN FEET ABOVE GROUND	BALLISTIC FACTORS
11- 60	.1440
60- 108	.0966
108- 148	.0629
148- 184	.0502
184- 216	.0286
216- 300	.0724
300- 400	.0533
400- 600	.0752
600- 800	.0557
800-1000	.0400

LAYERS IN FEET ABOVE GROUND	BALLISTIC FACTORS
1000- 1400	.0555
1400- 2000	.0575
2000- 2500	.0288
2500- 3000	.0195
3000- 3500	.0112
3500- 4000	.0073
4000- 4253	.0012
4253- 8000	-.0135
8000-15000	-.0147
15000-21000	-.0166

LAYERS IN FEET ABOVE GROUND	BALLISTIC FACTORS
21000-26000	-.0102
26000-32691	-.0110
32691-34000	.0430
34000-36000	.0411
36000-41000	.0545
41000-46000	.0259
46000-51000	.0154
51000-56000	.0092
56000-61000	.0060
61000-66000	.0040
66000-72158	.0020

TABLE II. BALLISTIC FACTORS
NIKE-HYDAC STV SR-048

AERO- VANE NO. *	MEAN WIND COMPONENTS IN MILES PER HOUR									
	1 0730 MST		2 0800 MST		3 0830 MST		4 0845 MST		5 0900 MS.	
	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W
1	2 ON	2.0E	0.0	0.0	3 ON	0.0	0 0	0.0	0.0	0.0
2	2.0	2.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0
3	4.0	2 0	0 0	0 0	0.0	0.0	0.0	0.0	0.0	0.0
4	6.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	8.0	0 0	2.0N	2.0W	0.0	0.0	0 0	0.0	0.0	0.0

AERO- VANE NO. *	MEAN WIND COMPONENTS IN MILES PER HOUR							
	6 0910 MST		7 0920 MST		8 0933 MST			
	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W
1	2.0N	2.0E	2.0N	0.0	0.0	0.0		
2	2.0	2.0	2.0	0.0	0.0	0.0		
3	2.0	2.0	2.0	2.0E	0.0	0.0		
4	2.0	2.0	2.0	2.0	0.0	0.0		
5	6.0	0.0	4.0	2.0	0.0	0.0		

TABLE 111 ANEMOMETER WIND SPEED AND DIRECTION
NIKE-HYDAC STV SR-048

* Heights corresponding to Aerovane Numbers: 1 = 35 Feet 3 = 128 Feet 5 = 200 Feet
2 = 88 Feet 4 = 168 Feet

LAYERS IN FEET ABOVE GROUND	MEAN WIND COMPONENTS IN MILES PER HOUR									
	1		2		3		4		5	
	0730 MST		0800 MST		0830 MST		0845 MST		0900 MST	
	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W
216- 300	6.5N	2.0E	3.5N	0.5E	0.0	0.0	0.0	0.0	0.5N	0.5E
300- 400	4.0	4.0	2.5	1.0	1.0N	1.0E	1.0N	1.0E	1.0	1.0
400- 600	2.5	4.0	1.0	2.0	1.0	1.0	2.0	2.0	1.0	1.0
600- 800	1.0	4.0	1.0	2.0	0.0	0.0	2-0	1.5	0.0	0.0
800-1000	0.0	4.0	0.0	1.5	2.0S	1.0W	2.0	1.0	1.5S	0.0
1000-1400	1.0S	4.0	1.5S	0.5	2.5	1.0	3.0S	0.0	4.0	0.0
1400-2000	2.0	3.5	3.0	0.5	3.0	1.0	5.0	0.5W	7.0	2.0W
2000-2500	2.0	2.0	2.0	1.0	4.5	1.5	6.0	2.0	8.5	2.0
2500-3000	2.0	1.5	2.0	1.0	6.5	2.5	7.0	4.5	8.0	2.0
3000-3500	1.5	1.0	3.5	0.0	6.0	4.0	6.0	4.5	8.0	2.5
3500-4000	2.0	0.5	3.0	1.5W	4.0	4.0	5.5	3.0	7.0	4.0

TABLE IV. PILOT-BALLOON-MEASURED WIND DATA
NIKE-HYDAC STV SR-048

LAYERS IN FEET ABOVE GROUND	MEAN WIND COMPONENTS IN MILES PER HOUR									
	6		7		8		MST		MST	
	0910 MST		0920 MST		0933 MST					
	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W
216- 300	4.0N	0.0	3.0N	1.0E	0.0	0.0				
300- 400	3.5	0.0	1.0	2.0	0.5N	0.5E				
400- 600	2.5	0.0	0.0	2.0	1.0	1.0				
600- 800	0.0	0.0	2.0S	2.0	2.0	1.0				
800-1000	2.0S	0.5E	4.0	0.0	2.0	0.5				
1000-1400	6.5	0.0	8.0	1.5W	7.5S	2.0W				
1400-2000	10.5	2.0W	12.0	3.0	16.0	3.0				
2000-2500	10.0	2.5	11.5	3.5	11.0	3.0				
2500-3000	8.5	1.5	10.0	4.5	9.0	3.0				
3000-3500	7.5	5.0	8.0	4.5	7.0	3.5				
3500-4000	6.5	8.0	4.5	4.5	3.0	3.0				

TABLE IV. PILOT-BALLOON-MEASURED WIND DATA (Cont)
NIKE-HYDAC STV SR-048

LAYERS IN FEET ABOVE GROUND	MEAN WIND COMPONENTS IN KNOTS							
	1 0630 MST		2 0930 MST					
	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W
4000- 4253	1.0S	1.5W	4.5S	4.0W				
4253- 9000	6.0	16.0	9.0	15.5				
9000-15000	8.0	21.5	11.0	19.0				
15000-21000	5.0	27.5	11.0	30.0				
21000-26000	11.5	31.0	12.0	34.0				
26000-32691	7.5	43.5	16.0	44.0				
32691-34000	8.0	44.5	9.5	53.0				
34000-36000	9.0	45.5	18.0	49.0				
36000-41000	9.0	52.0	18.0	49.0				
41000-46000	22.0	60.5	24.0	66.0				
46000-51000	7.5	43.5	9.0	51.0				
51000-56000	0.0	21.0	0.0	25.0				
56000-61000	0.0	14.0	8.0	14.0				
61000-66000	1.0S	6.0	8.0N	2.5E				
66000-74168	2.5	8.0	0.0	5.0W				

TABLE V. RAWINSONDE-MEASURED, WIND DATA
NIKE-HYDAC STV SR-048

STATION ALTITUDE 3989.0 FEET MSL
28 MAR. 67 0630 HRS MST
ASCENSION NO. 233

SIGNIFICANT LEVEL DATA
0705003901
WHITE SANDS SITE
TABLE VI

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

PRESSURE GEOMETRIC		TEMPERATURE		REL. HUM.
MILLIBARS	ALTITUDE MSL FEET	AIR DEGREES	DEWPOINT CENTIGRADE	
881.5	3989.0	4.4	-7.1	43.0
872.0	4282.9	12.4	-4.7	30.0
858.0	4733.8	19.4	-1.1	25.0
852.0	4932.7	22.4	-1.8	20.0
846.0	5132.9	19.1	-5.1	19.0
736.0	8991.1	9.7	-11.6	21.0
677.0	11250.1	5.3	-13.7	24.0
663.0	11810.7	5.4	-20.9	13.0
638.0	12839.0	3.8	-15.5	23.0
576.0	15535.3	-2.6	-17.5	31.0
412.0	23925.1	-23.9	-34.6	37.0
396.0	24872.3	-26.2	-31.3	63.0
354.0	27520.5	-30.0	-38.7	43.0
284.0	32555.1	-42.2	-50.2	42.0
220.0	38062.2	-56.8	0.	-0. **
185.0	41608.7	-65.2	0.	-0. **
167.0	43645.8	-68.7	0.	-0. **
152.0	45512.3	-66.7	0.	-0. **
128.0	48913.6	-69.6	0.	-0. **
102.0	53400.3	-67.5	0.	-0. **
90.0	55912.1	-63.4	0.	-0. **
76.0	59301.0	-68.1	0.	-0. **
73.0	60105.0	-65.2	0.	-0. **
69.0	61233.9	-66.7	0.	-0. **
61.0	63719.6	-62.4	0.	-0. **
48.0	68612.9	-61.7	0.	-0. **
38.0	73465.0	-55.3	0.	-0. **
28.0	79911.2	-54.9	0.	-0. **
26.0	81489.4	-51.7	0.	-0. **
20.0	87096.5	-53.4	0.	-0. **

** RELATIVE HUMIDITY NOT SUPPLIED. ZERO VALUE ASSUMED FOR COMPUTATIONS.

STATION ALTITUDE 3989.0 FEET MSL
 28 MAR. 67 0630 HRS MST
 ASCENSION NO. 233

SIGNIFICANT LEVEL DATA
 0705003901
 WHITE SANDS SITE
 TABLE VI (Cont)

WSFM SITE COORDINATES
 E 488,580 FEET
 N 185,045 FEET

PRESSURE GEOMETRIC ALTITUDE MILLIBARS MSL FEET	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT
14.0 94872.0	-43.1	-0. **
10.0 102351.2	-44.9	-0. **

** RELATIVE HUMIDITY NOT SUPPLIED. ZERO VALUE ASSUMED FOR COMPUTATIONS.

STATION ALTITUDE 3989.0 FEET MSL
28 MAR. 67 0630 HRS MST
ASCENSION NO. 233

UPPER AIR DATA
0705003901
WHITE SANDS SITE
TABLE VII

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS		WIND DATA DIRECTION (TN) DEGREES	SPEED KNOTS	INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE							
3989.0	881.5	4.4	-7.1	43.0	1104.9	649.2	0.0	0.0	0.0	1.000264
4000.0	881.1	4.7	-7.0	42.5	1103.2	649.6	0.1	0.1	0.0	1.000264
4500.0	865.2	15.8	-2.9	27.6	1041.2	662.6	5.3	5.3	0.4	1.000254
5000.0	850.0	21.3	-2.8	19.7	1003.6	668.9	10.5	10.5	0.8	1.000245
5500.0	834.9	18.2	-5.7	19.2	996.6	665.2	15.7	15.7	1.2	1.000240
6000.0	819.9	17.0	-6.5	19.4	982.9	663.8	47.9	47.9	1.2	1.000236
6500.0	805.3	15.8	-7.3	19.7	969.5	662.4	121.3	121.3	0.5	1.000232
7000.0	790.9	14.6	-8.2	20.0	956.2	661.0	188.8	188.8	1.4	1.000228
7500.0	776.7	13.3	-9.0	20.2	943.2	659.5	235.1	235.1	2.9	1.000224
8000.0	762.8	12.1	-9.9	20.5	930.3	658.1	244.7	244.7	5.1	1.000221
8500.0	749.2	10.9	-10.8	20.7	917.7	656.7	248.4	248.4	8.4	1.000217
9000.0	735.8	9.7	-11.6	21.0	905.2	655.3	250.8	250.8	12.0	1.000214
9500.0	722.3	8.7	-12.0	21.7	891.7	654.1	251.1	251.1	15.5	1.000210
10000.0	709.0	7.7	-12.5	22.3	878.4	653.0	251.4	251.4	18.9	1.000207
10500.0	696.0	6.8	-13.0	23.0	865.3	651.9	251.4	251.4	21.9	1.000204
11000.0	683.3	5.8	-13.4	23.7	852.5	650.7	251.1	251.1	23.8	1.000200
11500.0	670.7	5.3	-16.4	19.1	838.3	650.1	250.3	250.3	24.2	1.000195
12000.0	658.3	5.1	-19.6	14.8	823.7	649.8	248.2	248.2	22.9	1.000190
12500.0	646.1	4.3	-16.9	19.7	810.5	648.9	245.6	245.6	22.2	1.000189
13000.0	634.1	3.4	-15.6	23.5	798.0	647.9	244.2	244.2	21.7	1.000187
13500.0	622.2	2.2	-15.8	25.0	786.4	646.5	244.6	244.6	21.2	1.000184
14000.0	610.5	1.0	-16.2	26.4	775.0	645.1	248.9	248.9	20.9	1.000181
14500.0	599.1	-0.1	-16.5	27.9	763.7	643.7	253.5	253.5	20.7	1.000179
15000.0	587.8	-1.3	-17.0	29.4	752.7	642.3	257.6	257.6	20.8	1.000176
15500.0	576.8	-2.5	-17.4	30.9	741.8	640.9	259.3	259.3	21.4	1.000173
16000.0	565.4	-3.8	-18.4	31.3	730.6	639.4	259.4	259.4	22.1	1.000170
16500.0	554.2	-5.0	-19.4	31.7	719.6	637.8	257.5	257.5	22.9	1.000167
17000.0	543.3	-6.3	-20.4	32.0	708.8	636.3	255.5	255.5	23.8	1.000164
17500.0	532.5	-7.6	-21.4	32.4	698.1	634.8	253.4	253.4	24.7	1.000161
18000.0	522.0	-8.9	-22.4	32.8	687.6	633.2	253.0	253.0	25.6	1.000159

STATION ALTITUDE 3989.0 FEET MSL
28 MAR. 67 0630 HRS MST
ASCENSION NO. 233

UPPER AIR DATA
0705003901
WHITE SANDS SITE
TABLE VII

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND		WIND DATA		INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE			KNQTS	KNQTS	DIRECTION DEGREES(TN)	SPEED KNOTS	
18500.0	511.7	-10.1	-23.4	33.1	677.3	631.7	253.1	253.1	26.6	1.000156
19000.0	501.6	-11.4	-24.4	33.5	667.2	630.2	254.4	254.4	27.0	1.000153
19500.0	491.6	-12.7	-25.4	33.8	657.2	628.6	255.9	255.9	27.5	1.000151
20000.0	481.9	-13.9	-26.4	34.2	647.4	627.1	257.8	257.8	27.8	1.000148
20500.0	472.4	-15.2	-27.5	34.6	637.8	625.5	259.4	259.4	28.2	1.000146
21000.0	463.1	-16.5	-28.5	34.9	628.3	624.0	260.0	260.0	28.9	1.000143
21500.0	453.9	-17.7	-29.5	35.3	618.9	622.4	260.2	260.2	29.8	1.000141
22000.0	444.9	-19.0	-30.6	35.6	609.7	620.9	259.6	259.6	30.7	1.000139
22500.0	436.1	-20.3	-31.6	36.0	600.7	619.3	258.9	258.9	31.2	1.000136
23000.0	427.5	-21.6	-32.7	36.3	591.8	617.7	257.9	257.9	31.0	1.000134
23500.0	419.1	-22.8	-33.7	36.7	583.1	616.2	256.4	256.4	30.2	1.000132
24000.0	410.7	-24.1	-34.2	39.1	574.4	614.6	254.3	254.3	28.7	1.000130
24500.0	402.2	-25.3	-32.3	52.8	565.2	613.1	252.4	252.4	27.1	1.000128
25000.0	393.9	-26.4	-31.6	62.0	555.9	611.8	250.6	250.6	25.6	1.000127
25500.0	385.6	-27.1	-33.0	58.3	545.8	610.9	249.3	249.3	25.3	1.000124
26000.0	377.5	-27.8	-34.3	54.5	536.0	610.0	248.1	248.1	25.5	1.000121
26500.0	369.6	-28.5	-35.7	50.7	526.3	609.1	249.0	249.0	27.3	1.000119
27000.0	361.9	-29.3	-37.2	46.9	516.8	608.2	250.1	250.1	29.2	1.000117
27500.0	354.3	-30.0	-38.6	43.2	507.5	607.3	251.1	251.1	31.2	1.000114
28000.0	346.6	-31.2	-39.8	42.9	499.0	605.8	252.3	252.3	33.1	1.000112
28500.0	339.1	-32.4	-40.9	42.8	490.7	604.3	253.6	253.6	34.7	1.000110
29000.0	331.8	-33.6	-42.1	42.7	482.5	602.7	254.2	254.2	35.9	1.000108
29500.0	324.6	-34.8	-43.2	42.6	474.4	601.2	254.5	254.5	37.0	1.000107
30000.0	317.6	-36.0	-44.4	42.5	466.6	599.7	255.2	255.2	38.0	1.000105
30500.0	310.7	-37.2	-45.5	42.4	458.8	598.1	255.7	255.7	39.0	1.000103
31000.0	304.0	-38.4	-46.7	42.3	451.2	596.6	255.1	255.1	39.7	1.000101
31500.0	297.4	-39.6	-47.8	42.2	443.7	595.0	254.9	254.9	40.5	1.000099
32000.0	291.0	-40.9	-48.9	42.1	436.4	593.5	255.2	255.2	41.6	1.000098
32500.0	284.7	-42.1	-50.1	42.0	429.2	591.9	254.7	254.7	42.5	1.000096
33000.0	278.2	-43.4	-52.0	38.6**	421.8	590.2	253.1	253.1	43.2	1.000094

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** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
28 MAR. 67 0630 HRS MST
ASCENSION NO. 233

UPPER AIR DATA
0705003901
WHITE SANDS SITE
TABLE VII (Cont)

WSM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND		WIND DATA		INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE			KNOTS	KNOTS	DIRECTION DEGREES(TN)	SPEED KNOTS	
33500.0	271.8	-44.7	-54.1	34.8**	414.6	588.5		251.8	43.9	1.000093
34000.0	265.6	-46.0	-56.2	31.0**	407.4	586.8		250.7	44.5	1.000091
34500.0	259.5	-47.4	-58.5	27.2**	400.4	585.1		250.1	44.6	1.000089
35000.0	253.6	-48.7	-60.8	23.4**	393.6	583.4		249.7	44.4	1.000088
35500.0	247.8	-50.0	-63.3	19.5**	386.8	581.7		250.2	44.1	1.000086
36000.0	242.1	-51.3	-66.1	15.7**	380.2	579.9		251.1	43.8	1.000085
36500.0	236.5	-52.7	-69.1	11.9**	373.7	578.2		253.1	43.9	1.000083
37000.0	231.1	-54.0	-72.8	8.1**	367.4	576.4		255.3	44.1	1.000082
37500.0	225.8	-55.3	-78.0	4.3**	361.2	574.7		256.3	44.9	1.000080
38000.0	220.6	-56.6	-91.5	0.5**	355.0	572.9		257.2	45.8	1.000079
38500.0	215.3	-57.8	0.	0.	348.5	571.4		258.4	47.0	1.000078
39000.0	210.1	-59.0	0.	0.	341.9	569.8		259.6	48.2	1.000076
39500.0	205.1	-60.2	0.	0.	335.5	568.2		260.7	48.7	1.000075
40000.0	200.1	-61.4	0.	0.	329.3	566.6		261.8	49.0	1.000073
40500.0	195.3	-62.6	0.	0.	323.1	565.0		263.4	49.0	1.000072
41000.0	190.6	-63.8	0.	0.	317.1	563.4		264.1	49.0	1.000071
41500.0	186.0	-64.9	0.	0.	311.2	561.9		262.2	49.6	1.000069
42000.0	181.4	-65.9	0.	0.	304.9	560.6		259.8	50.3	1.000068
42500.0	176.9	-66.7	0.	0.	298.6	559.4		255.8	51.5	1.000066
43000.0	172.5	-67.6	0.	0.	292.4	558.3		252.2	53.0	1.000065
43500.0	168.2	-68.4	0.	0.	286.3	557.1		250.1	55.1	1.000064
44000.0	164.0	-68.3	0.	0.	279.0	557.3		248.4	57.2	1.000062
44500.0	160.0	-67.8	0.	0.	271.4	558.0		248.4	58.8	1.000060
45000.0	156.0	-67.2	0.	0.	263.9	558.7		248.5	60.4	1.000059
45500.0	152.1	-66.7	0.	0.	256.7	559.5		249.7	61.8	1.000057
46000.0	148.3	-67.1	0.	0.	250.8	558.9		251.0	63.1	1.000056
46500.0	144.6	-67.5	0.	0.	245.0	558.3		252.1	64.3	1.000055
47000.0	141.0	-68.0	0.	0.	239.4	557.8		253.2	65.4	1.000053
47500.0	137.5	-68.4	0.	0.	233.9	557.2		254.3	64.7	1.000052
48000.0	134.0	-68.8	0.	0.	228.6	556.6		255.4	63.4	1.000051

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
28 MAR. 67 0630 HRS MST
ASCENSION NO. 233

UPPER AIR DATA
0705003901
WHITE SANDS SITE
TABLE VII (Cont)

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND		WIND DATA		INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE			KNOTS	KNOTS	DIRECTION DEGREES(TN)	SPEED KNOTS	
48500.0	130.7	-69.2	0.	-0.	223.3	556.0	256.4	256.4	61.7	1.000050
49000.0	127.4	-65.6	0.	-0.	218.1	555.6	257.3	257.3	59.9	1.000049
50000.0	124.3	-69.3	0.	-0.	212.4	555.9	258.6	258.6	58.3	1.000047
50500.0	121.2	-69.1	0.	-0.	206.9	556.2	260.3	260.3	56.9	1.000046
51000.0	118.1	-68.9	0.	-0.	201.5	556.5	261.4	261.4	55.2	1.000045
51500.0	115.2	-68.6	0.	-0.	196.2	556.9	261.4	261.4	52.6	1.000044
52000.0	112.3	-68.4	0.	-0.	191.1	557.2	261.4	261.4	50.0	1.000043
52500.0	109.5	-68.2	0.	-0.	186.1	557.5	262.1	262.1	46.5	1.000041
53000.0	106.8	-67.9	0.	-0.	181.2	557.8	262.8	262.8	43.0	1.000040
53500.0	104.1	-67.7	0.	-0.	176.5	558.1	262.5	262.5	40.0	1.000039
54000.0	101.5	-67.3	0.	-0.	171.8	558.6	261.9	261.9	37.2	1.000038
54500.0	99.0	-66.5	0.	-0.	166.9	559.7	262.9	262.9	34.3	1.000037
55000.0	96.6	-65.7	0.	-0.	162.2	560.8	264.6	264.6	31.3	1.000036
55500.0	94.2	-64.9	0.	-0.	157.6	561.9	265.9	265.9	28.7	1.000035
56000.0	91.9	-64.1	0.	-0.	153.1	563.0	267.0	267.0	26.4	1.000034
56500.0	89.6	-63.5	0.	-0.	148.9	563.8	266.5	266.5	23.3	1.000033
57000.0	87.4	-64.2	0.	-0.	145.7	562.8	264.5	264.5	19.5	1.000032
57500.0	85.2	-64.9	0.	-0.	142.6	561.9	263.0	263.0	16.5	1.000032
58000.0	83.1	-65.6	0.	-0.	139.6	561.0	262.8	262.8	17.2	1.000031
58500.0	81.1	-66.3	0.	-0.	136.6	560.0	262.6	262.6	17.8	1.000030
59000.0	79.1	-67.0	0.	-0.	133.7	559.1	266.1	266.1	17.8	1.000030
59500.0	77.2	-67.7	0.	-0.	130.8	558.1	270.9	270.9	17.5	1.000029
60000.0	75.2	-67.4	0.	-0.	127.4	558.5	275.4	275.4	17.3	1.000028
60500.0	73.4	-65.6	0.	-0.	123.2	561.0	278.8	278.8	17.4	1.000027
61000.0	71.6	-65.7	0.	-0.	120.2	560.8	282.2	282.2	17.6	1.000027
61500.0	69.8	-66.4	0.	-0.	117.6	559.9	281.0	281.0	15.0	1.000026
62000.0	68.1	-66.2	0.	-0.	114.7	560.1	279.5	279.5	12.3	1.000026
62500.0	66.4	-65.4	0.	-0.	111.4	561.3	271.6	271.6	12.7	1.000025
63000.0	64.8	-64.5	0.	-0.	108.2	562.4	261.1	261.1	14.4	1.000024
63500.0	63.2	-63.6	0.	-0.	105.1	563.6	254.1	254.1	15.4	1.000023

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL

28 MAR. 67

ASCENSION NO. 233

UPPER AIR DATA

0705003901

WHITE SANDS SITE

TABLE VII (Cont)

WSTM SITE COORDINATES

E 488,580 FEET

N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND		WIND DATA		INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE			KNOTS	KNOTS	DIRECTION DEGREES(TN)	SPEED KNOTS	
63500.0	61.7	-62.8	0.	-0. **	102.1	564.8		250.4	15.9	1.000023
64000.0	60.2	-62.4	0.	-0. **	99.5	565.3		248.2	16.0	1.000022
64500.0	58.7	-62.3	0.	-0. **	97.0	565.4		249.8	15.3	1.000022
65000.0	57.3	-62.2	0.	-0. **	94.6	565.5		251.3	14.6	1.000021
65500.0	55.9	-62.1	0.	-0. **	92.3	565.6		253.2	10.0	1.000021
66000.0	54.6	-62.1	0.	-0. **	90.0	565.7		255.2	5.4	1.000020
66500.0	53.2	-62.0	0.	-0. **	87.8	565.8		250.1	3.5	1.000020
67000.0	51.9	-61.9	0.	-0. **	85.7	565.9		240.8	3.3	1.000019
67500.0	50.7	-61.9	0.	-0. **	83.6	566.0		233.1	3.3	1.000019
68000.0	49.5	-61.8	0.	-0. **	81.5	566.1		230.7	4.1	1.000018
68500.0	48.3	-61.7	0.	-0. **	79.5	566.2		228.2	4.9	1.000018
69000.0	47.1	-61.2	0.	-0. **	77.4	566.9		231.0	7.1	1.000017
69500.0	46.0	-60.5	0.	-0. **	75.4	567.8		234.8	9.5	1.000017
70000.0	44.9	-59.9	0.	-0. **	73.3	568.7		234.8	10.3	1.000016
70500.0	43.8	-59.2	0.	-0. **	71.4	569.5		229.0	8.5	1.000016
71000.0	42.8	-58.6	0.	-0. **	69.5	570.4		223.3	6.6	1.000015
71500.0	41.8	-57.9	0.	-0. **	67.6	571.3		225.0	5.0	1.000015
72000.0	40.8	-57.2	0.	-0. **	65.8	572.2		227.1	3.4	1.000015
72500.0	39.8	-56.6	0.	-0. **	64.0	573.0		241.0	2.5	1.000014
73000.0	38.9	-55.9	0.	-0. **	62.3	573.9		265.6	2.3	1.000014
73500.0	37.9	-55.3	0.	-0. **	60.7	574.7		289.5	2.4	1.000014
74000.0	37.0	-55.3	0.	-0. **	59.2	574.8		302.8	5.2	1.000013
74500.0	36.2	-55.2	0.	-0. **	57.8	574.8		316.1	8.0	1.000013
75000.0	35.3	-55.2	0.	-0. **	56.5	574.8		320.8	9.8	1.000013
75500.0	34.5	-55.2	0.	-0. **	55.2	574.9		319.6	11.0	1.000012
76000.0	33.7	-55.1	0.	-0. **	53.9	574.9		318.5	12.0	1.000012
76500.0	32.9	-55.1	0.	-0. **	52.6	575.0		317.9	11.5	1.000012
77000.0	32.1	-55.1	0.	-0. **	51.4	575.0		317.4	11.1	1.000011
77500.0	31.4	-55.0	0.	-0. **	50.1	575.0		306.2	11.1	1.000011
78000.0	30.7	-55.0	0.	-0. **	49.0	575.1		289.1	11.3	1.000011

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
 28 MAR. 67 0630 HRS MST
 ASCENSION NO. 233

UPPER AIR DATA
 0705003901
 WHITE SANDS SITE
 TABLE VII (Cont)

WSM SITE COORDINATES
 E 488,580 FEET
 N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND		WIND DATA		INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE			KNOTS	KNOTS	DIRECTION DEGREES(TN)	SPEED KNOTS	
78500.0	29.9	-55.0	0.	-0. **	47.8	575.1	273.7	11.8	1.000011	
79000.0	29.2	-55.0	0.	-0. **	46.7	575.2	268.2	13.7	1.000010	
79500.0	28.6	-54.9	0.	-0. **	45.6	575.2	262.7	15.6	1.000010	
80000.0	27.9	-54.7	0.	-0. **	44.5	575.5	261.4	17.1	1.000010	
80500.0	27.2	-53.7	0.	-0. **	43.2	576.8	262.6	18.3	1.000010	
81000.0	26.6	-52.7	0.	-0. **	42.0	578.1	263.7	19.5	1.000009	
81500.0	26.0	-51.7	0.	-0. **	40.9	579.4	265.6	18.7	1.000009	
82000.0	25.4	-51.9	0.	-0. **	40.0	579.2	267.4	17.9	1.000009	
82500.0	24.8	-52.0	0.	-0. **	39.1	579.0	270.7	17.2	1.000009	
83000.0	24.2	-52.2	0.	-0. **	38.2	578.8	278.6	16.5	1.000008	
83500.0	23.7	-52.3	0.	-0. **	37.3	578.6	286.5	15.9	1.000008	
84000.0	23.1	-52.5	0.	-0. **	36.5	578.4	291.4	15.3	1.000008	
84500.0	22.6	-52.6	0.	-0. **	35.7	578.2	293.0	14.7	1.000008	
85000.0	22.1	-52.8	0.	-0. **	34.9	578.0	294.7	14.2	1.000008	
85500.0	21.6	-52.9	0.	-0. **	34.1	577.8	294.2	14.4	1.000008	
86000.0	21.1	-53.1	0.	-0. **	33.3	577.7	292.8	15.0	1.000007	
86500.0	20.6	-53.2	0.	-0. **	32.6	577.5	291.5	15.5	1.000007	
87000.0	20.1	-53.4	0.	-0. **	31.8	577.3	283.2	15.1	1.000007	
87500.0	19.6	-52.9	0.	-0. **	31.1	577.9	274.5	14.7	1.000007	
88000.0	19.2	-52.2	0.	-0. **	30.3	578.8	267.6	14.5	1.000007	
88500.0	18.8	-51.5	0.	-0. **	29.5	579.7	269.2	14.8	1.000007	
89000.0	18.3	-50.9	0.	-0. **	28.7	580.5	270.8	15.1	1.000006	
89500.0	17.9	-50.2	0.	-0. **	28.0	581.4	271.0	15.8	1.000006	
90000.0	17.5	-49.6	0.	-0. **	27.3	582.2	268.6	17.3	1.000006	
90500.0	17.1	-48.9	0.	-0. **	26.6	583.1	266.2	18.8	1.000006	
91000.0	16.7	-48.2	0.	-0. **	25.9	584.0	266.2	20.1	1.000006	
91500.0	16.3	-47.6	0.	-0. **	25.2	584.8	268.2	21.2	1.000006	
92000.0	16.0	-46.9	0.	-0. **	24.6	585.7	270.3	22.3	1.000005	
92500.0	15.6	-46.2	0.	-0. **	24.0	586.5	270.5	23.2	1.000005	
93000.0	15.3	-45.6	0.	-0. **	23.4	587.4	270.2	24.0	1.000005	

STATION ALTITUDE 3989.0 FEET MSL
28 MAR. 67 0630 HRS MST
ASCENSION NO. 233

UPPER AIR DATA
0705003901
WHITE SANDS SITE
TABLE VII (Cont)

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	SPEED KNOTS	INDEX OF REFRACTION
93500.0	14.9	-44.9	-0. **	22.8	588.2	269.9	24.9	1.000005
94000.0	14.6	-44.3	-0. **	22.2	589.1	271.5	25.8	1.000005
94500.0	14.2	-43.6	-0. **	21.6	590.0	273.1	26.7	1.000005
95000.0	13.9	-43.1	-0. **	21.1	590.5	274.9	27.6	1.000005
95500.0	13.6	-43.3	-0. **	20.6	590.4	277.6	27.9	1.000005
96000.0	13.3	-43.4	-0. **	20.2	590.2	280.2	28.3	1.000004
96500.0	13.0	-43.5	-0. **	19.7	590.1	282.8	28.6	1.000004
97000.0	12.7	-43.6	-0. **	19.3	589.9	280.2	30.1	1.000004
97500.0	12.4	-43.7	-0. **	18.9	589.8	277.4	31.5	1.000004
98000.0	12.2	-43.9	-0. **	18.5	589.6	274.6	33.0	1.000004
98500.0	11.9	-44.0	-0. **	18.1	589.5			1.000004
99000.0	11.6	-44.1	-0. **	17.7	589.3			1.000004
99500.0	11.4	-44.2	-0. **	17.3	589.2			1.000004
100000.0	11.1	-44.3	-0. **	16.9	589.0			1.000004
100500.0	10.9	-44.5	-0. **	16.6	588.8			1.000004
101000.0	10.6	-44.6	-0. **	16.2	588.7			1.000004
101500.0	10.4	-44.7	-0. **	15.8	588.5			1.000004
102000.0	10.2	-44.8	-0. **	15.5	588.4			1.000003

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL

28 MAR. 67

ASCENSION NO. 233

MANDATORY LEVELS

0705003901

WHITE SANDS SITE

TABLE VIII

WSTM SITE COORDINATES

E 488,580 FEET

N 185,045 FEET

PRESSURE GEOPOTENTIAL		TEMPERATURE		REL. HUM. PERCENT	WIND DATA	
MILLIBARS	FEET	AIR DEGREES CENTIGRADE	DEWPOINT CENTIGRADE		DIRECTION DEGREES(TN)	SPEED KNOTS
850.0	4998.	21.3	-2.8	20.	10.5	0.8
800.0	6694.	15.3	-7.7	20.	148.3	0.7
750.0	8472.	11.0	-10.7	21.	248.3	8.3
700.0	10345.	7.1	-12.8	23.	251.4	21.0
650.0	12332.	4.6	-17.7	18.	246.5	22.4
600.0	14454.	-0.0	-16.5	28.	253.1	20.7
550.0	16717.	-5.5	-19.8	32.	256.6	23.3
500.0	19142.	-11.6	-24.6	34.	254.9	27.2
450.0	21758.	-18.3	-30.0	35.	259.8	30.3
400.0	24602.	-25.6	-31.9	56.	251.9	26.7
350.0	27747.	-30.6	-39.3	43.	251.7	32.4
300.0	31277.	-39.2	-47.3	42.	254.8	40.2
250.0	35287.	-49.5	-62.3	21.**	249.9	44.2
200.0	39951.	-61.4	0.	-0.**	261.9	49.0
175.0	42628.	-67.1	0.	-0.**	254.0	52.0
150.0	45672.	-66.9	0.	-0.**	250.4	62.5
125.0	49259.	-69.4	0.	-0.**	258.2	58.7
100.0	53651.	-66.9	0.	-0.**	262.1	35.5
80.0	58113.	-66.7	0.	-0.**	263.9	17.9
70.0	60763.	-66.3	0.	-0.**	281.2	15.4
60.0	63854.	-62.4	0.	-0.**	248.4	15.9
50.0	67552.	-61.8	0.	-0.**	231.8	3.7
40.0	72130.	-56.7	0.	-0.**	235.0	2.5
30.0	78152.	-55.0	0.	-0.**	274.3	11.6
25.0	81519.	-52.0	0.	-0.**	268.6	17.4
20.0	86727.	-53.4	0.	-0.**	281.6	15.1
15.0	92917.	-45.1	0.	-0.**	270.0	24.6
10.0	101845.	-44.9	0.	-0.**		

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
28 MAR. 67 0930 HRS MST
ASCENSION NO. 234

SIGNIFICANT LEVEL DATA
0705003902
WHITE SANDS SITE
TABLE IX

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

PRESSURE GEOMETRIC ALTITUDE		TEMPERATURE		REL. HUM.
MILLIBARS	MSL FEET	AIR DEGREES	DEWPOINT CENTIGRADE	
883.0	3989.0	18.2	-4.5	21.0
866.0	4533.1	16.4	-1.7	29.0
850.0	5056.5	19.6	-2.7	22.0
773.0	7711.6	14.4	-7.1	22.0
597.0	14695.9	0.5	-15.5	29.0
400.0	24777.9	-24.1	-37.9	27.0
380.0	26001.6	-27.1	-39.5	30.0
372.0	26506.3	-27.1	-36.5	41.0
355.0	27612.6	-28.5	-36.0	49.0
289.0	32346.8	-40.3	-49.3	38.0
250.0	35543.8	-48.6	0.	-0. **
190.0	41303.9	-62.5	0.	-0. **
162.0	44513.5	-66.6	0.	-0. **
139.0	47554.9	-68.2	0.	-0. **
127.0	49344.4	-67.6	0.	-0. **
117.0	50992.8	-62.5	0.	-0. **
108.0	52612.3	-64.9	0.	-0. **
100.0	54165.6	-63.6	0.	-0. **
80.0	58636.4	-68.0	0.	-0. **
71.0	61025.8	-64.1	0.	-0. **
68.0	61894.9	-65.8	0.	-0. **
60.0	64432.9	-61.1	0.	-0. **
51.0	67752.0	-62.9	0.	-0. **
40.0	72796.4	-54.2	0.	-0. **
29.0	79635.4	-52.7	0.	-0. **

** RELATIVE HUMIDITY NOT SUPPLIED. ZERO VALUE ASSUMED FOR COMPUTATIONS.

STATION ALTITUDE 3989.0 FEET MSL
28 MAR. 67 0930 HRS MST
ASCENSION NO. 234

UPPER AIR DATA
0705003902
WHITE SANDS SITE
TABLE X

WSTM SITE COORDINATES
E 489,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND		WIND DATA DIRECTION DEGREES (TN)	SPEED KNOTS	INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE			KNOTS	KNOTS			
3989.0	883.0	18.2	-4.5	21.0	1054.0	665.3	0.	0.	0.	1.000294
4000.0	882.7	18.2	-4.4	21.2	1053.7	665.2	359.2	359.2	0.0	1.000254
4500.0	867.0	16.5	-1.8	28.5	1040.5	663.5	322.9	322.9	1.8	1.000256
5000.0	851.7	19.3	-2.5	22.8	1012.6	666.6	286.6	286.6	3.6	1.000248
5500.0	836.6	18.7	-3.4	22.0	996.5	665.9	250.3	250.3	5.4	1.000243
6000.0	821.8	17.8	-4.2	22.0	982.3	664.8	214.1	214.1	7.2	1.000239
6500.0	807.2	16.8	-5.1	22.0	968.2	663.6	191.6	191.6	8.1	1.000235
7000.0	792.9	15.8	-5.9	22.0	954.3	662.5	198.7	198.7	7.0	1.000231
7500.0	778.9	14.8	-6.7	22.0	940.7	661.3	208.4	208.4	6.3	1.000226
8000.0	764.8	13.8	-7.4	22.3	926.9	660.2	221.4	221.4	6.1	1.000223
8500.0	750.8	12.8	-7.9	22.8	913.1	659.0	228.7	228.7	7.0	1.000219
9000.0	737.0	11.8	-8.5	23.3	899.6	657.9	231.9	231.9	8.9	1.000215
9500.0	723.5	10.8	-9.1	23.8	886.2	656.7	233.5	233.5	12.1	1.000212
10000.0	710.3	9.8	-9.6	24.3	873.1	655.5	234.6	234.6	15.0	1.000208
10500.0	697.2	8.9	-10.2	24.8	860.1	654.4	235.5	235.5	17.6	1.000205
11000.0	684.5	7.9	-10.8	25.3	847.4	653.2	236.3	236.3	19.0	1.000202
11500.0	671.9	6.9	-11.5	25.8	834.9	652.0	236.8	236.8	19.2	1.000198
12000.0	659.6	5.9	-12.1	26.3	822.5	650.9	237.0	237.0	19.0	1.000195
12500.0	647.5	4.9	-12.7	26.8	810.4	649.7	236.7	236.7	18.0	1.000192
13000.0	635.7	3.9	-13.3	27.3	798.4	648.5	237.0	237.0	18.2	1.000189
13500.0	624.0	2.9	-14.0	27.8	786.6	647.3	237.7	237.7	19.0	1.000186
14000.0	612.6	1.9	-14.6	28.3	775.1	646.1	238.4	238.4	19.5	1.000183
14500.0	601.3	0.9	-15.3	28.8	763.7	645.0	239.3	239.3	20.0	1.000180
15000.0	589.8	-0.2	-16.2	28.9	752.2	643.6	240.8	240.8	20.5	1.000176
15500.0	578.2	-1.5	-17.3	28.8	740.8	642.1	241.5	241.5	20.7	1.000173
16000.0	566.9	-2.7	-18.4	28.7	729.5	640.7	241.1	241.1	20.5	1.000170
16500.0	555.7	-3.9	-19.5	28.6	718.5	639.2	242.4	242.4	20.6	1.000167
17000.0	544.8	-5.1	-20.6	28.5	707.6	637.7	243.9	243.9	20.7	1.000164
17500.0	534.1	-6.3	-21.8	28.4	696.9	636.3	244.2	244.2	21.2	1.000161
18000.0	523.6	-7.6	-22.9	28.3	686.4	634.8	244.4	244.4	22.0	1.000158

STATION ALTITUDE 3989.0 FEET MSL
28 MAR. 67 0930 HRS MST
ASCENSION NO. 234

UPPER AIR DATA
0705003902
WHITE SANDS SITE
TABLE X (Cont)

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	SPEED KNOTS	INDEX OF REFRACTION
18500.0	513.3	-8.8	28.2	676.0	633.3	244.5	23.5	1.000155
19000.0	503.2	-10.0	28.1	665.8	631.8	245.4	25.5	1.000153
19500.0	493.3	-11.2	28.0	655.8	630.4	246.6	27.8	1.000150
20000.0	483.6	-12.4	27.9	646.0	628.9	247.3	29.5	1.000148
20500.0	474.1	-13.7	27.8	636.3	627.4	248.1	31.1	1.000145
21000.0	464.8	-14.9	27.7	626.7	625.9	249.5	31.5	1.000143
21500.0	455.6	-16.1	27.7	617.3	624.4	250.6	31.8	1.000140
22000.0	446.7	-17.3	27.6	608.1	622.9	250.9	32.1	1.000138
22500.0	437.9	-18.5	27.5	599.0	621.4	251.9	32.4	1.000136
23000.0	429.3	-19.8	27.4	590.1	619.9	253.6	32.9	1.000133
23500.0	420.8	-21.0	27.3	581.3	618.4	254.3	33.5	1.000131
24000.0	412.6	-22.2	27.2	572.6	616.9	254.4	34.2	1.000129
24500.0	404.4	-23.4	27.1	564.1	615.4	254.6	34.0	1.000127
25000.0	396.3	-24.6	27.5	555.5	613.9	254.8	33.6	1.000125
25500.0	388.1	-25.9	28.8	546.7	612.4	252.7	33.5	1.000123
26000.0	380.0	-27.1	30.0	538.0	610.8	251.0	33.7	1.000121
26500.0	372.1	-27.1	40.9	526.8	610.9	250.4	34.4	1.000119
27000.0	364.3	-27.7	44.6	517.0	610.1	250.1	34.9	1.000117
27500.0	356.7	-28.4	48.2	507.5	609.3	250.3	35.1	1.000115
28000.0	349.1	-29.5	48.1	499.0	607.9	250.9	35.6	1.000113
28500.0	341.6	-30.7	46.9	490.8	606.4	252.0	36.4	1.000111
29000.0	334.2	-32.0	45.8	482.7	604.8	253.2	36.6	1.000109
29500.0	327.1	-33.2	44.6	474.8	603.2	254.5	36.3	1.000107
30000.0	320.0	-34.5	43.5	467.0	601.6	254.5	37.6	1.000105
30500.0	313.1	-35.7	42.3	459.4	600.1	253.9	39.8	1.000103
31000.0	306.4	-36.9	41.1	451.9	598.5	254.1	41.2	1.000101
31500.0	299.8	-38.2	40.0	444.6	596.9	254.2	42.7	1.000100
32000.0	293.4	-39.4	38.8	437.3	595.3	253.1	44.9	1.000098
32500.0	287.0	-40.7	36.2**	430.1	593.7	252.1	46.5	1.000096
33000.0	280.6	-42.0	30.2**	422.9	592.0	251.6	46.4	1.000094

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
28 MAR. 67 0930 HRS MST
ASCENSION NO. 234

UPPER AIR DATA
0705003902
WHITE SANDS SITE
TABLE X

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND		WIND DATA		INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE			KNOTS	KNOTS	DIRECTION DEGREES(TN)	SPEED KNOTS	
33500.0	274.3	-43.3	-55.8	24.3**	415.7	590.3	251.2	251.2	46.6	1.000093
34000.0	268.1	-44.6	-59.1	18.3**	408.7	588.7	251.2	251.2	47.2	1.000091
34500.0	262.1	-45.9	-63.2	12.4**	401.8	587.0	251.8	251.8	47.4	1.000090
35000.0	256.2	-47.2	-68.9	6.5**	395.1	585.3	252.8	252.8	47.2	1.000088
35500.0	250.5	-48.5	-85.7	0.5**	388.5	583.6	254.5	254.5	49.1	1.000087
36000.0	244.6	-49.7	0.	-0. **	381.4	582.1	256.3	256.3	51.5	1.000085
36500.0	238.9	-50.9	0.	-0. **	374.5	580.5	257.9	257.9	51.0	1.000083
37000.0	233.2	-52.1	0.	-0. **	367.7	578.9	257.9	257.9	50.7	1.000082
37500.0	227.8	-53.3	0.	-0. **	361.0	577.3	257.5	257.5	51.1	1.000080
38000.0	222.4	-54.5	0.	-0. **	354.4	575.7	257.1	257.1	50.8	1.000079
38500.0	217.2	-55.7	0.	-0. **	348.0	574.1	256.6	256.6	49.9	1.000078
39000.0	212.0	-56.9	0.	-0. **	341.7	572.5	256.1	256.1	49.5	1.000076
39500.0	207.1	-58.1	0.	-0. **	335.5	570.9	255.7	255.7	50.0	1.000075
40000.0	202.2	-59.4	0.	-0. **	329.5	569.3	255.5	255.5	50.5	1.000073
40500.0	197.4	-60.6	0.	-0. **	323.5	567.7	256.4	256.4	51.3	1.000072
41000.0	192.8	-61.8	0.	-0. **	317.7	566.1	257.3	257.3	52.0	1.000071
41500.0	188.2	-62.8	0.	-0. **	311.6	564.8	257.8	257.8	50.5	1.000069
42000.0	183.5	-63.4	0.	-0. **	304.9	563.9	258.3	258.3	49.1	1.000068
42500.0	179.0	-64.0	0.	-0. **	298.3	563.1	256.7	256.7	49.3	1.000066
43000.0	174.6	-64.7	0.	-0. **	291.9	562.2	254.8	254.8	49.9	1.000065
43500.0	170.4	-65.3	0.	-0. **	285.6	561.4	253.4	253.4	52.1	1.000064
44000.0	166.2	-65.9	0.	-0. **	279.4	560.5	252.3	252.3	55.0	1.000062
44500.0	162.1	-66.6	0.	-0. **	273.4	559.6	252.0	252.0	58.6	1.000061
45000.0	158.1	-66.9	0.	-0. **	267.0	559.3	252.5	252.5	62.6	1.000059
45500.0	154.2	-67.1	0.	-0. **	260.7	558.9	252.9	252.9	65.8	1.000058
46000.0	150.3	-67.4	0.	-0. **	254.5	558.5	253.5	253.5	67.2	1.000057
46500.0	146.6	-67.6	0.	-0. **	248.5	558.2	254.1	254.1	68.7	1.000055
47000.0	142.9	-67.9	0.	-0. **	242.6	557.8	254.8	254.8	69.8	1.000054
47500.0	139.4	-68.2	0.	-0. **	236.9	557.5	255.6	255.6	70.8	1.000053
48000.0	135.9	-68.1	0.	-0. **	230.9	557.6	255.1	255.1	71.5	1.000051

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
28 MAR. 67 0930 HRS MST
ASCENSION NO. 234

UPPER AIR DATA
0705003902
WHITE SANDS SITE
TABLE X (Cont)

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	SPEED KNOTS	INDEX OF REFRACTION
48500.0	132.5	-67.9	-0.0	224.9	557.9	254.2	72.2	1.000050
49000.0	129.2	-67.7	-0.0	219.2	558.1	255.1	72.8	1.000049
49500.0	126.0	-67.1	-0.0	213.1	558.9	257.3	73.5	1.000047
50000.0	122.9	-65.6	-0.0	206.3	561.0	259.3	71.7	1.000046
50500.0	119.9	-64.0	-0.0	199.8	563.1	260.9	65.4	1.000044
51000.0	117.0	-62.5	-0.0	193.5	565.1	262.5	59.3	1.000043
51500.0	114.1	-63.3	-0.0	189.4	564.1	264.4	54.8	1.000042
52000.0	111.3	-64.0	-0.0	185.4	563.1	265.6	50.4	1.000041
52500.0	108.6	-64.7	-0.0	181.6	562.1	262.8	46.8	1.000040
53000.0	105.9	-64.6	-0.0	177.0	562.3	260.0	44.3	1.000039
53500.0	103.4	-64.2	-0.0	172.3	562.9	257.3	46.3	1.000038
54000.0	100.8	-63.7	-0.0	167.7	563.5	254.9	48.0	1.000037
54500.0	98.3	-63.9	-0.0	163.8	563.2	256.7	43.7	1.000036
55000.0	95.9	-64.4	-0.0	160.1	562.6	258.5	39.3	1.000036
55500.0	93.6	-64.9	-0.0	156.5	561.9	260.7	34.7	1.000035
56000.0	91.3	-65.4	-0.0	153.0	561.2	263.2	29.9	1.000034
56500.0	89.0	-65.9	-0.0	149.6	560.6	265.7	25.1	1.000033
57000.0	86.8	-66.4	-0.0	146.3	559.9	269.9	20.7	1.000033
57500.0	84.7	-66.9	-0.0	143.0	559.2	274.4	16.2	1.000032
58000.0	82.6	-67.4	-0.0	139.8	558.6	270.5	14.7	1.000031
58500.0	80.5	-67.9	-0.0	136.7	557.9	261.7	15.0	1.000030
59000.0	78.6	-67.4	-0.0	133.0	558.5	259.0	15.4	1.000030
59500.0	76.6	-66.6	-0.0	129.2	559.6	262.8	16.0	1.000029
60000.0	74.7	-65.8	-0.0	125.6	560.7	264.8	16.4	1.000028
60500.0	72.9	-65.0	-0.0	122.0	561.8	263.0	16.3	1.000027
61000.0	71.1	-64.1	-0.0	118.5	562.9	261.2	16.3	1.000026
61500.0	69.3	-65.0	-0.0	116.1	561.7	256.1	17.6	1.000026
62000.0	67.6	-65.6	-0.0	113.6	561.0	251.0	18.9	1.000025
62500.0	66.0	-64.7	-0.0	110.3	562.2	244.7	19.9	1.000025
63000.0	64.4	-63.8	-0.0	107.1	563.5	237.9	20.7	1.000024

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
 28 MAR. 67 0930 HRS MST
 ASCENSION NO. 234

UPPER AIR DATA
 0705003902
 WHITE SANDS SITE
 TABLE X (Cont)

WSTM SITE COORDINATES
 E 488,580 FEET
 N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND		WIND DATA		INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE			KNOTS	KNOTS	DIRECTION DEGREES(TN)	SPEED KNOTS	
63500.0	62.8	-62.8	0.	**	104.1	564.7	230.3	20.0	1.000023	
64000.0	61.3	-61.9	0.	**	101.1	565.9	220.9	15.4	1.000023	
64500.0	59.8	-61.1	0.	**	98.3	567.0	211.4	10.9	1.000022	
65000.0	58.4	-61.4	0.	**	96.0	566.6	201.8	7.4	1.000021	
65500.0	56.9	-61.7	0.	**	93.8	566.2	187.8	4.3	1.000021	
66000.0	55.6	-61.9	0.	**	91.7	565.9	108.6	4.7	1.000020	
66500.0	54.2	-62.2	0.	**	89.6	565.5	36.8	5.1	1.000020	
67000.0	52.9	-62.5	0.	**	87.5	565.1	357.7	5.0	1.000019	
67500.0	51.6	-62.8	0.	**	85.5	564.8	330.2	5.2	1.000019	
68000.0	50.4	-62.5	0.	**	83.3	565.2	329.7	5.8	1.000019	
68500.0	49.2	-61.6	0.	**	81.0	566.3	315.8	6.3	1.000018	
69000.0	48.0	-60.7	0.	**	78.8	567.5	281.9	6.6	1.000018	
69500.0	46.9	-59.9	0.	**	76.6	568.6	263.7	6.5	1.000017	
70000.0	45.8	-59.0	0.	**	74.5	569.8	264.6	6.0	1.000017	
70500.0	44.7	-58.2	0.	**	72.4	570.9	265.5	6.5	1.000016	
71000.0	43.6	-57.3	0.	**	70.4	572.1	266.5	8.4	1.000016	
71500.0	42.6	-56.4	0.	**	68.5	573.2	267.4	9.9	1.000015	
72000.0	41.6	-55.6	0.	**	66.6	574.4	268.0	9.5	1.000015	
72500.0	40.6	-54.7	0.	**	64.7	575.5	268.4	9.2	1.000014	
73000.0	39.6	-54.2	0.	**	63.0	576.2	264.1	10.2	1.000014	
73500.0	38.7	-54.0	0.	**	61.5	576.4	259.8	11.2	1.000014	
74000.0	37.8	-53.9	0.	**	60.1	576.5	248.1	8.2	1.000013	
74500.0	36.9	-53.8	0.	**	58.7	576.7	235.3	4.6	1.000013	
75000.0	36.1	-53.7	0.	**	57.3	576.8	184.7	2.8	1.000013	
75500.0	35.2	-53.6	0.	**	55.9	576.9	113.4	2.0	1.000012	
76000.0	34.4	-53.5	0.	**	54.6	577.1	108.3	1.3	1.000012	
76500.0	33.6	-53.4	0.	**	53.3	577.2	189.6	0.6	1.000012	
77000.0	32.8	-53.3	0.	**	52.0	577.4	244.4	0.1	1.000012	
77500.0	32.1	-53.2	0.	**	50.8	577.5	205.5	0.7	1.000011	
78000.0	31.3	-53.1	0.	**	49.6	577.7			1.000011	

STATION ALTITUDE 3989.0 FEET MSL
28 MAR. 67 0930 HRS MST
ASCENSION NO. 234

UPPER AIR DATA
0705003902
WHITE SANDS SITE
TABLE X (Cont)

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	SPEED KNOTS	INDEX OF REFRACTION
78500.0	30.6	-52.9	-0. **	48.4	577.8			1.000011
79000.0	29.9	-52.8	-0. **	47.3	577.9			1.000011
79500.0	29.2	-52.7	-0. **	46.1	578.1			1.000010

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
28 MAR. 67 0930 HRS MST
ASCENSION NO. 234

MANDATORY LEVELS
0705003902
WHIT' DS SITE
BLE XI

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

PRESSURE GEOPOTENTIAL		TEMPERATURE		REL. HUM. PERCENT	WIND DATA	
MILLIBARS	FEET	AIR DEGREES	DEWPOINT CENTIGRADE		DIRECTION DEGREES(TN)	SPEED KNOTS
850.0	5055.	19.6	-2.7	22.	282.6	3.8
800.0	6754.	16.3	-5.5	22.	195.3	7.5
750.0	8542.	12.8	-8.0	23.	229.0	7.2
700.0	10428.	9.1	-10.1	25.	235.4	17.4
650.0	12427.	5.1	-12.6	27.	236.7	18.2
600.0	14553.	0.8	-15.4	29.	239.5	20.1
550.0	16824.	-4.5	-20.1	29.	243.5	20.6
500.0	19259.	-10.4	-25.4	28.	246.0	26.8
450.0	21888.	-16.9	-31.3	28.	250.8	32.0
400.0	24750.	-24.1	-37.9	27.	254.7	33.8
350.0	27910.	-29.3	-36.9	48.	250.8	35.5
300.0	31457.	-38.2	-46.9	40.	254.2	42.8
250.0	35483.	-48.6	0.	-0.**	254.7	49.3
200.0	40177.	-59.9	0.	-0.**	256.0	50.9
175.0	42878.	-64.6	0.	-0.**	254.9	49.8
150.0	45942.	-67.4	0.	-0.**	253.5	67.4
125.0	49540.	-66.6	0.	-0.**	258.0	73.7
100.0	54022.	-63.6	0.	-0.**	255.5	46.6
80.0	58469.	-68.0	0.	-0.**	259.3	15.1
70.0	61129.	-64.7	0.	-0.**	258.0	17.1
60.0	64230.	-61.1	0.	-0.**	212.8	11.5
50.0	67929.	-62.2	0.	-0.**	329.6	6.1
40.0	72538.	-54.2	0.	-0.**	265.9	9.8
30.0	78610.	-52.9	0.	-0.**		

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

RELEASE TIME (MST)		SECOND-STAGE IMPACT DISPLACEMENT IN MILES DUE TO WIND								AZI- MUTH (DEG- REES)	THEORETICAL IMPACT FROM LAUNCHER (IN MILLS)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
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	AZIMUTH (DEG- REES)	MILES FROM LAUNCHER		
		RANGE	N-S	E-W
LAUNCHER SETTING (ELEVATION 84.5 DEGREES QE)	016.0	76.0	73.1N	20.9E
NO WIND IMPACT	012.2	71.8	73.1N	15.9E
PREDICTED SECOND-STAGE IMPACT	356.0	70.0	69.8N	4.9W
SECOND-STAGE IMPACT, RADAR TRACK	342.5	73.0	69.6N	22.0W
PREDICTED BOOSTER IMPACT	035.0	1.5	1.2N	0.9E

TABLE XII. IMPACT PREDICTION DATA
NIKE-HYDAC STV SR-048

UNCLASSIFIED

Security Classification

DOCUMENT CONTROL DATA - R&D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Electronics Command Fort Monmouth, New Jersey		2a. REPORT SECURITY CLASSIFICATION UNCLASSIFIED
		2b. GROUP
3. REPORT TITLE METEOROLOGICAL DATA REPORT, NIKE-HYDAC STV SR-048		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (Last name, first name, initial) DUNAWAY, Gordon L.		
6. REPORT DATE May 1967	7a. TOTAL NO. OF PAGES 26	7b. NO. OF REFS None
8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S) DR-183	
b. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
c. DA Task IV650212A127-02		
d.		
10. AVAILABILITY/LIMITATION NOTICES Distribution of this document is unlimited.		
11. SUPPLEMENTARY NOTES	12. SPONSORING MILITARY ACTIVITY U. S. Army Electronics Command Atmospheric Sciences Laboratory White Sands Missile Range, New Mexico	
13. ABSTRACT Meteorological data gathered for the launching of Nike-Hydac STV SR-048 are presented for the Ballistic Systems Division U. S. Air Force and for ballistic studies. The data appear, along with calculated ballistic data, in tabular form.		

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